



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
[www.uspto.gov](http://www.uspto.gov)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/083,598	02/27/2002	Masato Itakura	220130US2X	7422
22850	7590	12/16/2003		EXAMINER
OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314			PARSONS, THOMAS H	
			ART UNIT	PAPER NUMBER
			1745	

DATE MAILED: 12/16/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

<b><i>Office Action Summary</i></b>	<b>Application No.</b>	<b>Applicant(s)</b>
	10/083,598	ITAKURA ET AL.
	<b>Examiner</b>	<b>Art Unit</b>
	Thomas H Parsons	1745

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

1)  Responsive to communication(s) filed on 27 February 2002.

2a)  This action is FINAL.                            2b)  This action is non-final.

3)  Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

4)  Claim(s) 1-5 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

5)  Claim(s) 3-5 is/are allowed.

6)  Claim(s) 1 and 2 is/are rejected.

7)  Claim(s) \_\_\_\_\_ is/are objected to.

8)  Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

9)  The specification is objected to by the Examiner.

10)  The drawing(s) filed on 27 February 2002 is/are: a)  accepted or b)  objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)  The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. §§ 119 and 120**

12)  Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a)  All b)  Some \* c)  None of:  
1.  Certified copies of the priority documents have been received.  
2.  Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3.  Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

See the attached detailed Office action for a list of the certified copies not received.

13)  Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.  
a)  The translation of the foreign language provisional application has been received.

14)  Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

**Attachment(s)**

1)  Notice of References Cited (PTO-892)  
2)  Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3)  Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_.  
4)  Interview Summary (PTO-413) Paper No(s) \_\_\_\_\_.  
5)  Notice of Informal Patent Application (PTO-152)  
6)  Other: \_\_\_\_\_.

## DETAILED ACTION

### *Specification*

1. The disclosure is objected to because of the following informalities:

Page 1, lines 17-20, "... and the respective lower electrodes 4 bonded to both end ones of those thermoelectric semiconductor chips 6 thus connected in series to each other are soldered to corresponding lead wires 9." appears awkwardly worded;

Page 3, line 16, suggest changing "upper substrate 3" to --lower substrate 2A--;

Page 4, line 14, suggest changing "is" to --are--;

Page 9, line 19, "...both end ones of those lower electrodes 13 that..." appears awkwardly worded;

Page 9, last line, suggest changing "upper substrate 12" to --lower substrate 4--;

Page 10, line 3-4, suggest changing "lead wire 12" to --lead wire 18--;

Page 12, line 6, "...without being broken, not." appears awkwardly worded;

Lines 13-14, "...is controlled is mounted is attached..." appears awkwardly worded; and,

Page 19, line 15, suggest changing "upper substrate 12" to --lower substrate 11--

Appropriate correction is required.

### *Drawings*

2. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference character "1" has been used to designate both the **first solder** and the **thermoelectric**

**module** as mentioned on page 2, lines 7-8 and 11. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

3. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: "1A" as mentioned on page 3, line 18. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

4. Figures 13-15 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

***Claim Rejections - 35 USC § 112***

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 1-2 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1, lines 10-13: It is unclear as to what is meant by "...protrusions that protrude toward opposite sides which appear upon at-a-right-angle projection of the second substrate onto the first substrate. For example, Figures 2, 5 and 8 appear to show protrusions that protrude from

both ends of the lower substrate toward the upper substrate. How can the protrusion on the first substrate protrudes onto the first substrate?

Claim 2 is rejected as being dependent upon rejected claim 1.

***Claim Rejections - 35 USC § 102***

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Applicants' Prior Art Figures.

Claim 1: The Applicants disclose in Prior Art Figures 11-15 a thermoelectric module (1), comprising: a plurality of thermoelectric semiconductor chips (6); first and second substrates (2, 3); a plurality of first and second electrodes (4, 5) formed on said first and second substrates, respectively; and a first solder through which said first and second electrodes are bonded to respective end portions of said thermoelectric semiconductor chips in order to connect the plural thermoelectric semiconductor chips in series, said first substrate being made to include at least two protrusions (2a) that protrude toward opposite sides which appear upon at-a-right-angle projection of the second substrate onto the first substrate (Applicants' specification, page 1, line 6 through page 5, line 2).

***Allowable Subject Matter***

9. Claim 2 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.
10. Claims 3-5 are allowable over the prior art of record.

***Reasons for Indicating Allowable Subject Matter***

11. The following is a statement of reasons for the indication of allowable subject matter:

The Applicants' Prior Art Figures disclose method of assembling a thermoelectric module in a radiating member, comprising the steps of: mounting the first substrate of the thermoelectric module according to claim 1 on a radiating member through second solder having a liquidus temperature lower than a solidus temperature of the first solder; holding the side center portions of the upper substrate between a pair of support arms **respective protrusions of the first substrate by leading edges of corresponding support arms** in a state where the second solder is melted, and pushing the first substrate toward the radiating member under pressure while rocking the first substrate in a direction orthogonal to the pushing direction.

However, the Applicants' Prior Art Figures do not disclose holding the respective protrusions of the first substrate by leading edges of corresponding support arms.

Therefore, a search of the prior art of record failed to reveal or explicitly teach what is instantly claimed: in particular,

A method of assembling a thermoelectric module in a radiating member, comprising the steps of: mounting the first substrate of the thermoelectric module according to claim 1 on a

radiating member through second solder having a liquidus temperature lower than a solidus temperature of the first solder; holding the respective protrusions of the first substrate by leading edges of corresponding support arms in a state where the second solder is melted, and pushing the first substrate toward the radiating member under pressure while rocking the first substrate in a direction orthogonal to the pushing direction.

**For this reason, claim 3 and claims 4-5, which are dependent thereon, are patentably distinct from the prior art of record.**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thomas H Parsons whose telephone number is (703) 306-9072. The examiner can normally be reached on M-F (7:00-4:30) First Friday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Pat Ryan can be reached on (703) 308-2383. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9310.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

Thomas H Parsons  
Examiner  
Art Unit 1745

\*\*\*

  
Patrick Ryan  
Supervisory Patent Examiner  
Technology Center 1700